



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,463	03/18/2004	Robert Gerlach	2918.RGER.NP	7225
26986 7590 03/30/2007 MORRISS O'BRYANT COMPAGNI, P.C. 734 EAST 200 SOUTH SALT LAKE CITY, UT 84102			EXAMINER DUNN, DANIELLE N	
			ART UNIT	PAPER NUMBER
			2809	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		03/30/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/804,463

Applicant(s)

GERLACH, ROBERT

Examiner

Danielle Dunn

Art Unit

2809

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) 36-47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-47 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3/18/2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 5/17/2004.
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - A. Claims 1-35, drawn to single colored LED arrays, classified in class 362, subclass 230.
 - B. Claims 36-44, drawn to multicolor LED arrays arranged in a specific orientation, classified in class 362, subclass 800.
 - C. Claim 45, drawn to an LED lighting system, classified in class 362, subclass 277.
 - D. Claims 46 and 47, drawn to a method for determining human color perception, classified in class 351, subclass 200.

2. Inventions A and B are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination B has separate utility such as producing multiple colors of lights within the visible spectrum arranged in a specific orientation. See MPEP § 806.05(d).

The examiner has required restriction between subcombinations usable together. Where applicant elects a subcombination and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the

allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

3. Inventions A and C are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because invention A requires a power supply, single color LEDs, and a controller in order to operate. The subcombination has separate utility such as producing multicolored lights within the visible spectrum.

The examiner has required restriction between combination and subcombination inventions. Where applicant elects a subcombination, and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such

Art Unit: 2809

claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

4. Inventions B and C are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because invention C requires a power supply, multicolored LEDs, and a controller in order to operate. The subcombination B has separate utility such as producing a specific orientation of multicolored lights within the visible spectrum.

The examiner has required restriction between combination and subcombination inventions. Where applicant elects a subcombination, and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

5. Inventions A, B, C and D are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h). In the instant case inventions A, B, and C do not require white light to operate while invention D requires white light.

6. Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

7. During a telephone conversation with Paul C. Oestreich on 3/07/2007 a provisional election was made to prosecute the invention of the LED array, claims 1-35. It is unclear whether the election was made with or without traverse. Affirmation of this election must be made by applicant in replying to this Office action. Claims 36-47 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

8. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim

remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Information Disclosure Statement

9. The information disclosure statement (IDS) submitted on 5/17/2004 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

10. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Drawings

11. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "area enclosed by plotting an output of each LED on a CIE Chromaticity diagram as a point and connecting the points covering at least 75%, 85% and 95% of the total area defined within the curve of spectrally pure colors and an alychne of purple colors" and "the spectral power distribution within 30% normalized mean deviation of a spectral power

distribution of midday sunlight having correlated color temperature (CCT) of about 6500°K" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. **Claim 1** is rejected under 35 U.S.C. 112, second paragraph, for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "from a distance of at least 24 inches" in claim 1 is a relative term which renders the claim indefinite. The term "from a distance of at least 24 inches" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

14. **Claims 27-29 and 35** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. This claim is an omnibus type claim. In regards to claims 27-29, it is not clear how applicant can plot an area by plotting an output of identically colored LEDs. This would result in a point on the CIE Chromaticity Diagram. In regards to claim 35, it is not clear what the boundaries are to the invention; applicants must specifically define what the boundaries are.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. **Claims 1, 2, and 20-23** are rejected under 35 U.S.C. 103(a) as being unpatentable over Muthu et al. (US 6,441,558) and further in view of Turnbull et al. (US 5,803,579).

a. In regards to **claim 1**, Muthu et al. teach an LED array formed of a plurality of LEDs (Fig. 1, items 22, 24, and 28), with each LED or group of identically colored LEDs. Muthu et al. also teaches that the LED array is used for spotlights/floodlights (Fig. 1).

b. Muthu et al. do not teach the array having overall luminance sufficient to illuminate an object from a distance of at least 24 inches or that the visible spectrum is 400 to 750nm.

c. Turnbull et al. teach the visible spectrum of light is from 380nm to 780nm (Column 6, lines 22-25).

d. In regards to **claim 2**, Muthu et al. teach each LED or group of identically colored LEDs within the LED array is configured for independent control (Fig. 1 and 4).

e. In regards to **claims 20-23**, Muthu et al. teach the plurality of LEDs number less than or equal to 100, 64, 36 and 16 LEDs (Fig. 1)

f. Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to use the structure of the white LED

luminary light control system of Muthu et al. in combination with any diodes within the visual spectrum as noted by Turnbull et al., since the patented structure is used as a spotlight/flood light it is capable of illuminating objects from a distance of at least 24 inches. Selecting a specific measurement would amount to a recitation of the intended use of the patented invention, without resulting in any structural difference between the claimed invention and the structure disclosed by Muthu, and therefore fails to patentably distinguish the claimed invention from the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

17. **Claims 3-5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Muthu et al. (US 6,441,558) and Turnbull et al. (US 5,803,579) as applied to claim 1 above, and further in view of LEDTRONICS, Inc.

(http://web.archive.org/web/20021015160056/http://www.ledtronics.com/datasheets/Pages/general_information/100-02a.htm).

g. In regards to **claims 3-5**, Muthu et al. and Turnbull et al. teach an LED array formed of a plurality of LEDs comprising wavelengths in the visible spectrum having the overall luminance sufficient to illuminate an object from a distance of at least 24 inches.

h. Muthu et al. and Turnbull et al. do not teach that the LEDs produces colored light with a spectral half-width of less than about 60nm, 40nm, or 30nm.

i. LEDTRONICS, Inc. teach LEDs that produce colored light with a spectral half-width of about 90nm, 65nm, 60nm, 50nm, 45nm, 35nm, 30nm, and 20nm.

j. Therefore it would have been obvious at the time the invention was made to use the array of LEDs of Muthu et al. within the visible spectrum as noted by Turnbull et al. in combination with the LEDs from LEDTRONICS, Inc. to illuminate an object because this would allow for greater illumination of objects.

18. **Claims 6, 7, 9, 10, 12, 13, and 15-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Muthu et al. (US 6,441,558) and Turnbull et al. (US 5,803,579), as applied to claim 1 above, and further in view of LEDTRONICS, Inc.

(http://web.archive.org/web/20020927061148/http://www.ledtronics.com/datasheets/Pages/led_color_chart/38.htm)

k. Muthu et al. and Turnbull et al. teach an LED array formed of a plurality of LEDs comprising wavelengths in the visible spectrum having the overall luminance sufficient to illuminate an object from a distance of at least 24 inches.

l. In regards to **claims 6, 9, and 12**, Muthu et al. and Turnbull et al. do not teach specified colors within 25nm of associated dominant wavelengths.

m. LEDTRONICS, Inc. teaches the following specified colors within 25nm of an associated dominant wavelength violet 425 nm (**ultra violet 405nm**), blue 465 nm (**super blue 470nm**), cyan 500 nm (**blue green 505nm**), green 530 nm (**aqua green 525nm**), lime 555 nm (**pure green 555nm**), amber 580 nm (**super lime yellow 574nm**), orange 610 nm (**super orange 612nm**), red 650 nm (**ultra**

red 660nm), violet 405 nm (**ultra violet 405nm**), indigo 445 nm (**ultra blue 430nm**), blue 480 nm (**super blue 470nm**), cyan 510 nm (**aqua green 525nm**), green 535 nm (**pure green 555nm**), lime 555 nm (**super pure green 560nm**), yellow-amber 575 nm (**super lime yellow 574nm**), orange 600 nm (**orange 605nm**), orange-red 630 nm (**super red 633nm**), deep red 665 nm (**ultra red 660nm**), violet 410 nm (**ultra violet 405nm**), indigo 445nm (**ultra blue 430nm**), blue 475 nm (**super blue 470nm**), cyan 500 nm (**blue green 505nm**), aqua 520 nm (**aqua green 525nm**), green 540 nm (**pure green 555nm**), lime 555 nm (**super pure green 560nm**), yellow 570 nm (**yellow 585nm**), amber 590 nm (**super yellow 595nm**), orange 610 nm (**super orange 612nm**), red-orange 635 nm (**high eff. red 635nm**) and deep red 665 nm (**ultra red 660nm**).

n. In regards to **claims 7, 10, and 13**, Muthu et al. and Turnbull et al. do not teach specified colors within 15nm of associated dominant wavelengths.

o. LEDTRONICS, Inc. teaches the following specified colors within 15nm of an associated dominant wavelength: violet 425 nm (**ultra blue 430nm**), blue 465 nm (**super blue 470nm**), cyan 500 nm (**blue green 505nm**), green 530 nm (**aqua green 525nm**), lime 555 nm (**pure green 555nm**), amber 580 nm (**yellow 585nm**), orange 610 nm (**super orange 612nm**), red 650 nm (**ultra red 660nm**), violet 405 nm (**ultra blue 405nm**), indigo 445 nm (**ultra blue 430nm**), blue 480 nm (**super blue 470nm**), cyan 510 nm (**blue green 505nm**), green 535 nm (**aqua green 525nm**), lime 555 nm (**super pure green 560nm**), yellow-amber

575 nm (**super lime yellow 574nm**), orange 600 nm (**super yellow 595nm**), orange-red 630 nm (**super red 633nm**), deep red 665 nm (**ultra red 660nm**), violet 410 nm (**ultra violet 395nm**), indigo 445nm (**ultra blue 430nm**), blue 475 nm (**super blue 470nm**), cyan 500 nm (**blue green 505nm**), aqua 520 nm (**aqua green 525nm**), green 540 nm (**pure green 555nm**), lime 555 nm (**super pure green 560nm**), yellow 570 nm (**super lime yellow 574nm**), amber 590 nm (**super yellow 595nm**), orange 610 nm (**super orange 620nm**), red-orange 635 nm (**high eff. red 635nm**) and deep red 665 nm (**ultra red 660nm**).

p. In regards to **claims 15-17**, Muthu et al. and Turnbull et al. do not teach each dominant wavelength being separated from its nearest neighbor on either side by not more than about 40nm, 30nm, or 20nm.

q. LEDTRONICS, Inc. teaches each dominant wavelength being separated from its nearest neighbor on either side by not more than about 40nm, 30nm or 20nm.

r. In regards to **claim 18**, LEDTRONICS, Inc. teaches the dominant wavelengths gradually increasing away from either side of approximately 555nm.

s. In regards to **claim 19**, LEDTRONICS, Inc. teaches LEDs with a dominant wavelength in the near ultra-violet region.

t. Therefore it would have been obvious at the time the invention was made to use the array of LEDs of Muthu et al. within the visible spectrum as noted by Turnbull et al. in combination with the LEDs from LEDTRONICS, Inc. to illuminate an object because this would allow one to create multicolored light from various LED colors.

19. **Claims 8, 11, and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Muthu et al. (US 6,441,558), Turnbull et al. (US 5,803,579), and LEDTRONICS, Inc.

(http://web.archive.org/web/20020927061148/http://www.ledtronics.com/datasheets/Pages/led_color_chart/38.htm), as applied to claim 1 above, and further in view of The LED Museum

(<http://web.archive.org/web/20030201225626/http://ledmuseum.home.att.net/ledleft.htm>

)

u. Muthu et al. and Turnbull et al. teach an LED array formed of a plurality of LEDs comprising wavelengths in the visible spectrum having the overall luminance sufficient to illuminate an object from a distance of at least 24 inches.

v. In regards to **claims 8, 11, and 14**, Muthu et al. and Turnbull et al. do not teach specified colors within 25nm of associated dominant wavelengths.

w. LEDTRONICS, Inc. teaches the following specified colors within 5nm of an associated dominant wavelength: violet 425 nm (**ultra blue 430nm**), blue 465 nm (**super blue 470nm**), cyan 500 nm (**blue green 505nm**), green 530 nm (**aqua**

green 525nm), lime 555 nm (pure green 555nm), amber 580 nm (yellow 585nm), orange 610 nm (super orange 612nm), violet 405 nm (ultra blue 405nm), cyan 510 nm (blue green 505nm), green 535 nm (aqua green 525nm), lime 555 nm (super pure green 560nm), yellow-amber 575 nm (super lime yellow 574nm), orange 600 nm (super yellow 595nm), orange-red 630 nm (super red 633nm), deep red 665 nm (ultra red 660nm), violet 410 nm (ultra violet 405nm), blue 475 nm (super blue 470nm), cyan 500 nm (blue green 505nm), aqua 520 nm (aqua green 525nm), lime 555 nm (super pure green 560nm), yellow 570 nm (super lime yellow 574nm), amber 590 nm (super yellow 595nm), orange 610 nm (super orange 612nm), red-orange 635 nm (high eff. red 635nm) and deep red 665 nm (ultra red 660nm).

x. The LED Museum teaches the following specified colors within 5nm of an associated dominant wavelength: red 650 nm (**pure bright red 645nm**), indigo 445 nm (**deep blue/violet blue 444nm**), blue 480 nm (**blue, slightly greenish-tinted azure blue 475nm**), indigo 445nm (**deep blue/violet blue 444nm**), green 540 nm (**no color seen, but within green wavelength 540nm**).

y. Therefore it would have been obvious at the time the invention was made to use the array of LEDs of Muthu et al. within the visible spectrum as noted by Turnbull et al. in combination with the LEDs from LEDTRONICS, Inc. and The LED Museum to illuminate an object because this would allow one to create multicolored light from various LED colors.

20. **Claims 24-26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Muthu et al. (US 6,441,558) and Turnbull et al. (US 5,803,579) as applied to claim 1 above.

z. In regards to **claims 24-26**, Muthu et al. and Turnbull et al. teach an LED array formed of a plurality of LEDs comprising wavelengths in the visible spectrum having the overall luminance sufficient to illuminate an object from a distance of at least 24 inches.

aa. Muthu et al. and Turnbull et al. do not teach the amount of power that each of the plurality of LEDs comprise.

bb. It would have been obvious to one skilled in the art at the time the invention was made to perform testing to acquire the optimal Wattage values because this would ensure that the LEDs would not overheat, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2nd 272, 205 USPQ 215 (CCPA 1980).

21. **Claims 30-34** are rejected under 35 U.S.C. 103(a) as being unpatentable over Muthu et al. (US 6,441,558) and Turnbull et al. (US 5,803,579), as applied to claim 1 above, and further in view of LEDTRONICS, Inc.

(<http://www.ledtronics.com/datasheets/Pages/chromaticity/097b.htm>).

cc. In regards to **claim 30**, Muthu et al. and Turnbull et al. teach an LED array formed of a plurality of LEDs comprising wavelengths in the visible spectrum

having the overall luminance sufficient to illuminate an object from a distance of at least 24 inches.

dd. Muthu et al. and Turnbull et al. do not teach the relative luminance values for all LEDs within the LED array operating at full brightness levels resulting in a composite white-type light that may be plotted on a CIE Chromaticity diagram within McAdam ellipses that are on or adjacent to a Planckian Locus within a predefined correlated color temperature range.

ee. LEDTRONICS, Inc. teaches the CIE Chromaticity diagrams from 1931 and 1976 which shows the relative luminance values for all LEDs operating at full brightness levels plotted on a CIE Chromaticity diagram within McAdams ellipses that are on or adjacent to a Planckian Locus within a predefined correlated color temperature range.

ff. In regards to **claims 31-34**, LEDTRONICS, Inc. teaches the Color Temperature in Kelvins from 1000°K - ∞ °K. 1500°K -25000°K, 3000°K -10000°K, 4500°K -7500°K, 5500°K -6500°K are all optimum or workable ranges, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only ordinary skill in the art. *In re Aller*, 105 USPQ 233.

gg. Therefore it would have been obvious at the time the invention was made to use the array of LEDs of Muthu et al. within the visible spectrum as noted by

Turnbull et al. in combination with the LEDs from LEDTRONICS, Inc. to illuminate an object because this would allow one to create white light from various LED colors.

Conclusion

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 5,851,063 teach a light emitting diode with white light source.

US 5,752,766 teach a LED stage light.

US 6,153,971 teach a CIE Chromaticity area of a light source.

US 6,203,170 teach a fish extracting or repelling device comprising a diode array.

US 6,379,022 teach an auxiliary illuminating device.

US 6,234,645 teach a LED lighting system for producing white light.


23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Danielle Dunn whose telephone number is 571-270-3039. The examiner can normally be reached on M-F 7:30-5:00 with alternate Friday's off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Assouad can be reached on 571-272-2210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2809

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DND



**PATRICK ASSOUD
SUPERVISORY PATENT EXAMINER**